

Lok, Ltd., 54 USPQ 2d 1299, 1304 (Fed. Cir. 2000) (quoting *Donohoe*, 766 F.2d at 533, 226 USPQ at 621.) Alternatively, Applicant has submitted a revised and amended claim further incorporating the specification into the claims. See, specifically, new claims 35-36.

**REMARKS**

Applicant believes he has fully responded to the examiners arguments and rejections with regard to the previously presented patent claims 1-20. Additionally, Applicant has submitted new claims 21-41 as guided by the office action. Applicant hereby declares the all claims submitted herein are fully supported by applicant's original patent application. Applicant requests the examiner consider the enclosed response and allow the patent application.

Respectfully submitted,

MARION CALMER,

Date: September 8, 2005

By \_\_\_\_\_  
\_\_\_\_\_  
Jay R Hamilton  
Reg. No. 50,644

Law Office of Jay R. Hamilton, PLC.  
331 W. 3<sup>rd</sup> St. NVC Suite 100  
Davenport, IA 52801  
Tel (563) 441-0207  
Fax (563) 823-4637

CLAIMS LISTING

- 1) (Currently amended) An improved separation element of a corn head row unit comprising:
  - a. a source of power for rotation,
  - b. at least two opposing stalk rolls connected to said power source,
  - c. said stalk rolls having at least one flute,
  - d. said flute having at least one penetration point; and,  
wherein said penetration point is composed of hardened material.
- 2) (Currently amended) An improved separation element of a corn head row unit comprising:
  - a. a source of power for rotation,
  - b. at least two opposing stalk rolls connected to said power source,
  - c. said stalk rolls having at least one flute,
  - d. said flute having a knife edge; and,  
wherein said entire knife edge is composed of hardened material.
- 3) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the knife edge has a predetermined surface slope.
- 4) (Previously Presented) The separation element of said corn head row unit according to claim 3 wherein the knife edges have a forward slope relative to the direction of rotation of each of said stalk rolls.
- 5) (Previously Presented) The separation element of said corn head row unit according to claim 4 wherein the knife edges of opposing flutes have a predetermined surface slope and the angle of said slopes of opposing flutes are identical.
- 6) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the opposing flutes are tapered.
- 7) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the opposing flutes intermesh.

- 8) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the radius of the opposing flute surfaces is reduced in discrete increments along the length of the stalk roll.
- 9) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the opposing flutes surfaces have a plurality of radii along the length of the stalk roll.
- 10) (Previously Presented) The separation element of said corn head row unit according to claim 2 wherein the radius of the leading edge of the flute is less than the trailing edge of the flute in relation to the direction of rotation of the stalk roll.
- 11) (Currently Amended) An improved separation element of a corn head row unit comprising:
  - a. a source of power for rotation,
  - b. at least two opposing stalk rolls connected to said power source,
  - c. each of said stalk rolls having at least one flute wherein the flutes are opposite each other,
  - d. said flutes having a knife edge; and,
  - e. said entire knife edge is composed of hardened material.
- 12) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein the distance between said opposing flutes decreases along the length of said stalk rolls.
- 13) (Previously Presented) The separation element of said corn head row unit according to claim 12 wherein the knife edges have a forward slope in relation to the direction of rotation of said stalk rolls.
- 14) (Previously Presented) The separation element of said corn head row unit according to claim 13 wherein the knife edge has a predetermined surface slope per stalk roll and said the angles of said slopes are identical.

- 15) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein the radius of the opposing flute surfaces is reduced in discrete increments along the length of the stalk roll.
- 16) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein the opposing flutes surfaces have a plurality of radii along the length of the stalk roll.
- 17) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein the radius of the leading edge of the flute is less than the trailing edge of the flute in relation to the direction of rotation of the stalk roll.
- 18) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein the opposing flutes are substantially in the shape of a trapezoid.
- 19) (Previously Presented) The separation element of said corn head row unit according to claim 11 wherein a substantially trapezoidal shaped void created is between the opposing flutes when opposite each.
- 20) (Currently Amended) An improved method of engaging corn plants with a corn head row unit comprising the steps of:
  - a) engaging the corn plant with a plurality of rotational elements,
  - b) pinching the corn plant between said rotational elements,
  - c) penetrating the corn plant stalk with said rotational elements a pre-determined penetration depth, wherein the pre-determined penetration depth of each of said rotational elements is less than half the diameter of the corn plant stalk,
  - d) pulling the corn plant stalk with the rotational elements,
  - e) said penetrating, pinching and pulling steps repeatedly lacerating the corn plant stalk along its length and width; and,
  - f) separating the corn plant ear from the corn plant stalk and husk.
- 21) (New) An improved separation element of a corn head row unit comprising:

- a. a source of power for rotation,
- b. at least two opposing and parallel stalk rolls connected to said power source,
- c. said stalk rolls having at least one flute,
- d. said flute having a knife edge; and,  
wherein said entire knife edge is composed of hardened material.

22) (New) The separation element of said corn head row unit according to claim 21  
wherein the knife edge has a predetermined surface slope.

23) (New) The separation element of said corn head row unit according to claim 22  
wherein the knife edges have a forward slope relative to the direction of rotation of  
each of said stalk rolls.

24) (New) The separation element of said corn head row unit according to claim 23  
wherein the knife edges of opposing flutes have a predetermined surface slope and  
the angle of said slopes of opposing flutes are identical.

25) (New) The separation element of said corn head row unit according to claim 22  
wherein the opposing flutes are tapered along the length of the stalk roll.

26) (New) The separation element of said corn head row unit according to claim 22  
wherein the opposing flutes intermesh.

27) (New) The separation element of said corn head row unit according to claim 25  
wherein the radius of the opposing flute surfaces is reduced in discrete increments  
along the length of the stalk roll.

28) (New) The separation element of said corn head row unit according to claim 26  
wherein the opposing flutes surfaces have a plurality of radii along the length of the  
stalk roll.

29) (New) The separation element of said corn head row unit according to claim 26  
wherein the opposing flutes edges are tapered to decrease the width of the gap  
between the opposing flutes edges along the length of the stalk roll.

30) (New) The separation element of said corn head row unit according to claim 29 wherein the number of opposing flute edges increases along the length of said stalk roll from the front to the posterior of said stalk roll.

31) (New) A stalk roll for a corn harvesting header, the stalk roll comprising:

- a cylindrical shell having a central longitudinal axis;
- longitudinal integral flutes extending radially from the shell, the flutes are substantially parallel to the central longitudinal axis, each flute is provided with a knife edge, each knife edge has a leading surface and a trailing surface, said leading and trailing surface forming an acute angle; and,
- means for mounting the shell to a drive shaft of a corn harvesting header.

32) (New) A stalk roll as defined by claim 31 wherein the cylindrical shell is provided with six flutes.

33) (New) A stalk roll as defined by claim 32 wherein the cylindrical shell comprises two semi-cylindrical pieces, each semi-cylindrical piece having three flutes.

34) (New) A stalk roll as defined by claim 33 wherein the means for mounting comprises at least two bolt holes formed in each semi-cylindrical piece and associated bolts for clamping the semi-cylindrical pieces about the drive shaft of the corn harvesting head.

35) (New) A stalk roll as defined by claim 31 wherein the acute angle formed by the leading surface and the trailing surface is approximately 40 degrees.

36) (New) A stalk roll as defined by claim 31 wherein each knife edge is self-sharpening.

37) (New) A stalk roll as defined by claim 31 wherein the leading surface is coated with tungsten carbide.

38) (New) A pair of adjoining stalk rolls for a corn header, the adjoining stalk rolls defining a harvesting gap, each stalk roll comprising:  
a cylindrical shell having a central longitudinal axis;  
longitudinal integral flutes extending radially from the shell, the flutes are

substantially parallel to the central longitudinal axis, each flute is provided with a knife edge, each knife edge has a leading surface and a trailing surface, the leading surface forming an acute angle with the trailing surface; whereby the flutes of the pair of adjoining stalk rolls are offset to one another.

- 39) (New) A pair of adjoining stalk rolls as defined by claim 38 wherein each knife edge is self-sharpening.
- 40) (New) A pair of adjoining stalk rolls as defined by claim 39 wherein each of the cylindrical shells is provided with six flutes.
- 41) (New) A pair of adjoining stalk rolls as defined by claim 38 wherein each cylindrical shell comprises two semi-cylindrical pieces, each semi-cylindrical piece having three flutes.
- 42) (New) A pair of adjoining stalk rolls as defined by claim 38 wherein the opposing flutes are tapered.
- 43) (New) A pair of adjoining stalk rolls as defined by claim 42 wherein the opposing flutes intermesh.
- 44) (New) A pair of adjoining stalk rolls as defined by claim 43 wherein the opposing flutes surfaces have a plurality of radii along the length of said stalk rolls.